



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

5152385

D6025-120 Job Sheet 174302-A

Accounting Job RD17-1027-01



Part No: D6025-120

Job Qty: 8 ea

Part Name: Crosstube Material



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 2/11/19

Job Tracking No:

Due Date: 7/31/18

Created By: Jesse White

Type: Rework

Description:

Note: TBD D6025 REV.C IPP REV:A 16.09.16 NEW ISSUE DD VERF:JFS IPP REV:B 17.12.14 AS PER DWG
REV.C DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
120	QC	8 pcs		7/31/18	0.00	0.00	QC18		
130	HandFinish	8 pcs		7/31/18	0.00	2.67	HandFinish1		
135	QC	8 pcs		7/31/18	0.00	0.00	QC7-5		
140	Packaging	8 pcs		7/31/18	0.00	0.00	Packaging3-2		
150	QC21-SA	8 Ea		7/31/18	0.00	0.00	QC21		

Part Op 120 - Ensure Material certification comply to Dwg D6025
Descriptions: 140 - LOCATION : LG003

DWG
21
9-29

FEB 13 2019

Job BOM

Job BOM records could not be found.

Job Allocations

Job Allocations could not be found.

Part Specifications

Specifications could not be found.

Plex 2/11/19 11:12 AM dart.white.jesse

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐	DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Eng. (Non-AW) ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐			
Date :	Sequence #:	QTY Affected :		MRB (QSI042)	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor	
				QC / QA Coordinator	
Root Cause Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Presservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐ ☐ Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled		FAULT CATEGORY ☐ Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐ Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread			
Other/Details:					

5120907



Dart Aerospace Ltd.
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Canada

Tel (613) 632-5200

Split 21

D6025-120
Job Sheet 174302

Accounting Job RD17-1027-01



Part No: D6025-120

Job Qty: 25 ea

Part Name: Crosstube Material



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 3/13/18

Job Tracking No:

Due Date: 7/31/18

Created By: Steven Hemmerich

Type: Rework

Description:

Note: TBD D6025 REV.C IPP REV:A 16.09.16 NEW ISSUE DD VERF:JFS IPP REV:B 17.12.14 AS PER DWG
REV.C DD VERF:JFS

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Purchasing	25 pcs		7/30/18	0.00	0.00	Purchasing		AT/8/10/24
110	Packaging	25 pcs		7/30/18	0.00	0.00	Packaging2		AT/8/10/24
120	QC	25 pcs		7/30/18	0.00	0.00	QC18		AT/8/10/24
130	HandFinish	25 pcs		7/31/18	0.00	8.33	HandFinish1		
135	QC	25 pcs		7/31/18	0.00	0.00	QC7-5		
140	Packaging	25 pcs		7/31/18	0.00	0.00	Packaging3-2		
150	QC21-SA	25 Ea		7/31/18	0.00	0.00	QC21		

Part Op 100 - Issue P/O 039197 (D6025-120) A) Extrude crosstube material as per Dwg D6025 B) Material certification is required *** EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*** MUST BE WELL PACKAGE, IF NOT IT WILL BE REFUSE***
110 - Ensure material certification is attached
120 - Ensure Material certification comply to Dwg D6025
140 - LOCATION : LG003

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6025-120P	Crosstube Material	25 pcs (1 ea) 24	100-Purchasing	5120787

Job Allocations

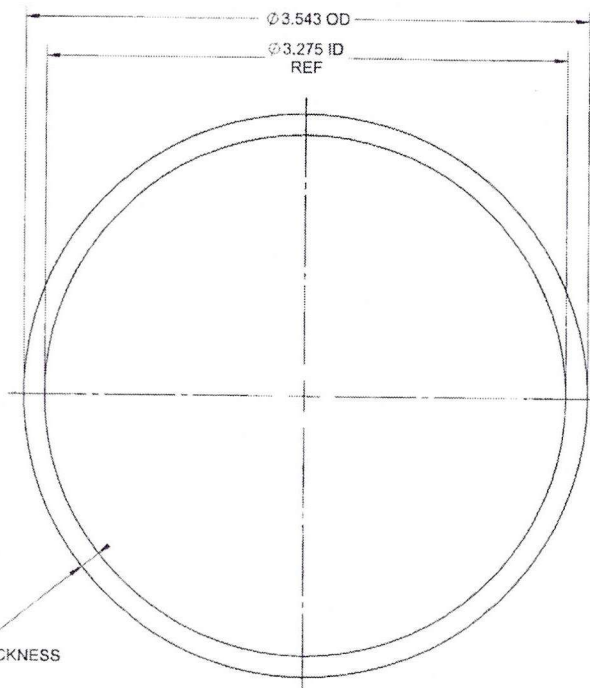
Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6025-120P	25	0	0

Part Specifications

Specifications could not be found.

Plex 3/13/18 1:50 PM dart.hemmerich.steven

SPECIFICATION CONTROL DRAWING



D6025-XXX CROSSTUBE MATERIAL

WHERE XXX IS LENGTH IN INCHES
EG. 103" LONG TUBE: D6025-103

NOTES:

- 1) MATERIAL: 3.543 OD X 0.134 WALL T7075-T73 T73510/T73511 WW-T-700/2 OR QQ-A-225/9 OR QQ-A-200/11 OR ASTM B210 OR ASTM B241) SEAMLESS ALUMINUM TUBE, MINIMUM ULTIMATE TENSILE STRENGTH = 66 KSI, MINIMUM YIELD TENSILE STRENGTH = 56 KSI, MINIMUM ELONGATION = 12%
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO SENDING THE EXTRUSION TO AN OUTSIDE VENDOR
- 3) TOLERANCES: O.D.: +/- 0.008 MEAN (+/- 0.016 INCLUDING OVALITY)
WALL: +/- 0.006 MEAN (+/- 0.013 INCLUDING ECCENTRICITY)
LENGTH: XXX +0.500/-0.000
STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: N/A
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

C	UPDATE MATERIAL PROPERTIES, TOLERANCES AND ADD CHEMICAL CONVERSION COAT	ML	17.05.25
B	ADDED NOTE 9	ML	17.01.20
A	NEW ISSUE	ML	16.03.24
REV.	DESCRIPTION	BY	DATE
DESIGN	ML		
DRAWN	ML		
CHECKED	AJS		
MFG. APPR.	LL		
APPROVED	WM		
DE APPR.	CP		
DATE	17.05.25		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D6025**
TITLE **CROSSTUBE MATERIAL**
REV. C
SHEET 1 OF 1
SCALE
NTS

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THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS LOANED TO YOU ON THE EXPRESS CONDITION THAT IT IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE LTD.

RELEASED
2017-08-01
E617-607

APPROVED

D6025-120

EXTRUSION INSPECTION SHEET



		3.535-3.551 SIDE A		SIDE B		Measurment unit Inches		Symbol "		ULTRA SONIC MEASURMENTS					
TUBE #	TOTAL LENGTH	DIA		DIA		INSIDE DIA	wall thickness measured w/vern	Strightness at 12" in middle	Rockwell Reading	LOCATION on tube	R1	R2	R3	R4	
		R1	R2	R1	R2										
DWG									N/A	Middle	N/A				
1	120"	3.5395	3.5395	3.5345	3.535	3.282	0.131	0.133		N/A	Middle				
2	120"	3.5335	3.5355	3.5385	3.5380	3.272	0.1335	0.132		N/A	Middle				
3	120"	3.5365	3.5398	3.540	3.541	3.279	0.131	0.1325		N/A	Middle				
4	120"	3.5405	3.5385	3.5375	3.541	3.283	0.131	0.1345		N/A	Middle				
5	120"	3.541	3.539	3.540	3.539	3.280	0.134	0.134		N/A	Middle				
6										N/A	Middle				
7										N/A	Middle				
8										N/A	Middle				
9										N/A	Middle				
10										N/A	Middle				
11										N/A	Middle				
12										N/A	Middle				
13										N/A	Middle				
14										N/A	Middle				
15										N/A	Middle				
16										N/A	Middle				
PART #		P/O#				BATCH #				Notes:					



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER **PO039197**

Supplier: ALU001-VU
Aluminiumwerk Unna AG
630-3033 SOUTH PARKER RD
AURORA, CO 80014 USA
Phone: 303 755 5672
Fax: 303 755 5936

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO039197
PO Date: 3/5/18
Due Date:
Purchase Order Revision:
Revision Date:
Ship-To Contact: Hemmerich, Steven
Phone: 613-632-5200 Ext: 281
shemmerich@dartaero.com

Via: Journey Freight
Pymt Terms: Net 30
Freight Terms:

Special Comments: *****EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS.*****

MUST BE WELL PACKAGED, IF NOT IT WILL BE REFUSED

*****ELONGATION PROPERTIES FOR MATERIAL MUST BE 12% OR GREATER.

C OF C IS REQUIRED

Items

Line Item	Part	Supplier Part No	Item No	Description	Status	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	D6025-120P			Crosstube Material. As per drawing D6025 RevC	Firmed	6/5/18	25 pcs 29	0 pcs 29	25 pcs	\$401.00/pcs At 13/10/24	\$10,025.00
Line Item Note Temper to T73, T73510 or T73511											
2	D6027-115P			Crosstube Material	Firmed	6/5/18	19 pcs 24	0 pcs 24	19 pcs	\$533.00/pcs At 18/10/24	\$10,127.00
Line Item Note Temper to T73, T73510 or T73511											
3	D6026-110P			Crosstube Material	Firmed	6/5/18	16 pcs 18	0 pcs 18	16 pcs	\$466.00/pcs At 13/10/24	\$7,456.00
Line Item Note Temper to T73, T73510 or T73511											
Grand Total:											\$27,608.00

Order Notes

Order Notes

Procurement Quality Clauses

A005 RIGHT OF ENTRY

A008 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION SENT TO DART AEROSPACE)

A012 CHEMICAL AND PHYSICAL TEST REPORTS

A016 PERSONNEL QUALIFICATION

A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)

A026 CERTIFICATION OF MATERIAL CONFORMANCE

A041 QUALITY MANAGEMENT SYSTEM

A042 DART NOTIFICATION BY SUPPLIER

A043 RETENTION OF QUALITY DOCUMENT

A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM

A049 SUPPLIER AWARENESS

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.



Plex 3/7/18 10:04 AM dart.hemmerich.steven

Packing List Aluminiumwerk Unna AG

Page 1 of 1



Order				Article				Box marking				
Commission-No.:	70411			Outer Diameter (Inch):	3,543			DART AEROSPACE / P.O. 39197/ D6025-120 MADE IN GERMANY / DEST.: HAWKESBURY ONT, CANADA				
Item No.:	100			Inner Diameter (Inch):	3,275							
Customer PO:	PO39197			Wall (Inch):	0,134							
Customer:	Dart Aerospace			Length (Feet):	10,00							
Date:	08.08.2018			Drawing:	89,99 x 3,4							
Comments:	We hereby declare, that the wooden packing material are totally free from bark and apparently free from live plant pests.											
Box No.	Boxdimensions				Total number of pieces and weights				Cast/Heat-Groups in the box			
	Length (Inch)	Width (Inch)	Heigth (Inch)	Volume (cbm)	Pieces	Net lbs	Tare lbs	Gross lbs	Position	Pieces	Cast-No.	Heat-No.
1	125,984	22,441	22,441	1,04	23	392,422	171,96	564,383		23	8595	1308864
2	125,984	22,441	22,441	1,04	6	101,413	187,393	288,805		6	8595	1308864
Total				2,08	29	493,835	359,353	853,188		29		

Abnahmeprüfzeugnis 3.1 - DIN EN 10204:2005

Inspection Certificate 3.1 - DIN EN 10204:2005 / Certificat de Reception 3.1 - DIN EN 10204:2005

Kunde:
Client:

Dart Aerospace Ltd.

1270 Aberdeen Street
K6A1K7 Hawkesbury, ON Canada

Zeugnisnummer: 1462/18

Cert No.: / No. du certificat:

Bestellnummer:

Order No. / No. de commande

Auftrag:

70411/100

Our Reference/Notre Reference:

Produkt:

Product / Produit:

Rohre nahtlos gepresst und gezogen

Tubes seamless extruded and drawn

Spezifikation:

Specification:

AMS - WW - T - 700/7A; Spezifikation Dart Aerospace LTD. (elongation12%)

Werkstoff:

Alloy/Alliage:

7075

Zustand:

Temper/Etat

T 73

Abmessung

Size / Dimension

3,543 INCH x 3,275 INCH x 0,134 INCH
D0625-120P

x 120,000 FEET



Kennzeichnung

Marking/Marquage:

ALUnna - Cert No. 1462/18 - AMS WW-T-700/7A - 3.543" OD x 0.134" WT - 7075 - T 73 - Cast No. 8595 - Heat Lot No. 1308864 -
ALUnna Order Confirmation No. 70411/100 - P.O. 39197

Lieferung

Delivered Material / Matériel délivré:

pcs.

lbs

Country of Manufacture: Germany

29

494

Products are in accordance with applicable RoHS

1. Chemische Analyse

Chemical Analysis / analyse chimique

	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Pb	Zr	Bi	Sn	Ni	Na
Charge/ min.			1,2		2,1	0,18	5,1							
Cast No. max.	0,40	0,50	2,0	0,30	2,9	0,28	6,1	0,20						
8595/18	0,098	0,155	1,499	0,049	2,335	0,202	5,688	0,048	0,0030	0,0370	0,0001	0,0018	0,0050	0,0001

Hydrogen content: 0,15

ccm / 100 g Al Elements without indication < 0,01 %

country of melt manufacturer: Germany

2. Mechanische Eigenschaften

Mechanical Properties / Valeurs Mécaniques

Anforderungen Requirements	tensile (Rm) ksi	yield (Rp0,2) ksi	elongation 2" %	elongation A %	Hardness HB	electrical conductivity (IACS)
	66,0	56,0	12,0			
1	74,7	64,9	12,2			38,6

max. RMS 25 - max.9,8 µ"

**Ergebnis der
Prüfungen:**

Es wird bestätigt, daß die Lieferung geprüft wurde und den Vereinbarungen bei der Bestellannahme entspricht

Test results:

We confirm that the delivery has been tested and applies to the agreements made on receipt of the order

Resultats:

Nous confirmons que la livraison a été contrôlée et correspond avec les conventions faites à la réception de la commande

mergardtri

09.08.2018

Certified acc. DIN EN ISO 9001:2015 and DIN EN 9100:2016
valid until 2019-11-10

TÜV Nord - Cert.-Req. No.: 44 100 131576 and 44 117 131576

Aluminiumwerk Unna AG, Uelzener Weg 36, 59425 Unna, Germany

ALUnna

Abnahmebeauftragter

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: D6025-120
 DATE: 18/10/24

PO / BATCH NO.: P00391975120907

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 29
 QUANTITY INSPECTED: 29
 QUANTITY REJECTED: 0

THICKNESS ORDERED: _____
 THICKNESS RECEIVED: _____
 SHEET SIZE ORDERED: _____
 SHEET SIZE RECEIVED: _____

DESCRIPTION	NCR (Check Y/N)	COMMENTS
SURFACE DAMAGE	Y ☒ N ☐	
CORRECT FINISH	Y ☒ N ☐	
CORROSION	Y ☒ N ☐	
CORRECT GRAIN DIRECTION	Y ☒ N ☐	
CORRECT MATERIAL PER M-DRAWING	Y ☒ N ☐	AMS WW-T-700/7
CORRECT THICKNESS	Y ☒ N ☐	
PHOTO REQUIRED	Y ☒ N ☐	
CORRECT REF # TO LINK CERT	Y ☒ N ☐	P0039197
CORRECT MATERIAL IDENTIFICATION	Y ☒ N ☐	
CORRECT M# ON THE MATERIAL	Y ☒ N ☐	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y ☐ N ☒	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y ☐ N ☒	

CUT SAMPLE PIECE OF MATERIAL AND PREFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>AT</u> DATE: <u>18/10/24</u>	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in